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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/975,507 | 10/12/2001 | Ken C. K. Cheung | OCEANIT | 9787 |

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01/24/2006

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| EXAMINER |
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DINH, TIEN QUANG

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| ART UNIT | PAPER NUMBER |
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3644

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/975,507
Filing Date: October 12, 2001
Appellant(s): CHEUNG ET AL.

James Wray
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 3/29/04.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

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Appellant's brief includes a statement that claims in the appeal do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) *Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) *Prior Art of Record*

| | | |
|---------|-------------------|---------|
| 4516747 | LURZ | 5/1985 |
| 4697769 | BLACKWELDER ET AL | 10/1987 |
| 5209438 | WYGNANSKI | 5/1993 |
| 5752672 | MCKILLIP | 5/1998 |
| 5218863 | MANGALAM | 6/1993 |

(10) *Grounds of Rejection*

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-6, 15, 17-25, 28, 29, 31, 36, and 47 are rejected under 35 U.S.C. 102(b). This rejection is set forth in a prior Office Action, mailed on 10/28/03.

Claims 7, 26, 27, 30, 32-35, 37, and 40-46 are rejected under 35 U.S.C. 103(a). This rejection is set forth in a prior Office Action, mailed on 10/28/03.

(11) *Response to Argument*

In response to applicant's arguments concerning the Lurz reference, the Examiner respectfully disagrees with the applicant's assertion that the Lurz does not disclose what has been claimed. Lurz clearly has disclosed what has been claimed (see the previous final rejection office action). The claims call for one or more conformable skin elements with each skin element forming a pressure transducer and flow modifier. The Examiner has pointed out in his last office action that the skin element can be made up of parts 1, 2, 3, 2, 4 or the skin element can be made up of element 1, 2 or 3, 2, 4 (as clearly shown in figure 1). The controller, connections for coupling the skin elements and the controller, and feedback control loop are also shown in figure 1. The applicant attention is also requested to column 3, lines 58 to column 4, lines 1-12, which states that the sensors 1, 3, 4 and actuators 2 work as part of a whole system to control the boundary layer on the aircraft. This clearly meets what has been claimed. The applicant is also requested to look at column 4, lines 28-43, which states, "The use of two vibration transmitters 2, one behind the other in the flow direction, as shown in FIG. 1, improves the effect of boundary layer control..." Please also note that Lurz teaches that that other sensor arrangements are also possible (look at column 4, lines 40-43).

As for the arguments about claims 2 and 3, please note that the "analyzer control circuits" are essentially computers, which have micro-controller or programmable computer chips.

Please note that Lurz indeed shows electrical connections, feedback loop, shaped skin elements that form surface transducers and actuator/vortex controllers to control the boundary layer of the moving body.

Re claim 22 and 23, after the activation, the skin element would conform to the vehicle shape from a mounting perimeter since conforming to the vehicle shape are broad terms. Plus, when the skin element is mounted on the vehicle, it has a mounting pattern. Furthermore, the Examiner has interpreted elements 1, 2 (which are pressure transducers and flow modifier, respectively) as being one skin element. Elements 3, 2, and 4 are also interpreted as another skin element.

Re claim 28, please note column 4, lines 12-16.

Re claim 32, please note that Lurz does show a closed feedback loop (see figure 1).

Re claims 34, 35, and 41-46, please look at the previous office action by the Examiner that these claimed elements are obvious to one skilled in the art.

Please note that the Mangalam teaches amplifiers and filters, Blackwelder teaches piezoelectric/piezo ceramic, McKillip teaches actuatable materials being shape memory alloys, and Wygnanski teaches that actuatable materials being mountable like a cantilever. These references in combination with Lurz disclose all claimed parts of the invention. Blackwelder teaches that piezo actuators are well known. The Examiner uses this to show that the actuator of Lurz can be made out of piezo material only. The Examiner does not suggest putting Blackwelder parts directly into Lurz. Mangalam was used to show that amplifiers and filters are well known to one skilled in the art to be used in a circuit. McKillip's teaching is used to show that it is obvious to one skilled in the art to have made the Lurz's actuator out of shape memory alloys. The Wygnanski reference is used to show that the actuatable material mountable as a cantilever is well known in the art and obvious to one skilled in the art to have used it in place of

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Lurz's actuator. This does not contradicts Lurz's mounting arrangement of sensors and actuators.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



TIEN DINH
June 12, 2004

Conferees
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